



## **QUARTERLY GROUNDWATER MONITORING REPORT**

**Third Quarter 2005 (Thirteenth Quarterly)**

**Sampled on July 18, 2005**

**Job # SP-110**

**LOP # 12509**

November 18, 2005

**Big Oil & Tire – Blue Lake BP (Blue Lake 76)**

291 Blue Lake Boulevard  
Blue Lake, California 95525

This *Quarterly Groundwater Monitoring Report* was prepared for Big Oil & Tire Co. (BO&T) by SounPacific staff using data from previous studies conducted by Clearwater Group, Inc. (CGI) and file review conducted at Humboldt County Division of Environmental Health (HCDEH). The site is located at 291 Blue Lake Boulevard, Blue Lake, California (Figure 1). This report documents the results of the scheduled groundwater monitoring conducted for the third quarter of 2005, along with the results of the development and sampling on September 5, 2005, of an open, unused domestic well located on private property to the south of the subject site.

### **SITE DESCRIPTION**

The site is surfaced around the current structure with concrete and asphalt. Site improvements include a single story building with an attached warehouse and three (3) dispenser islands. The primary building is used as a mini-mart and the warehouse is used for storage. An apartment building is located adjacent to the north of the mini-mart. The main structures are positioned on the northern property line with the entrance to the mini-mart facing south towards Blue Lake



Boulevard (Figure 2).

There is currently one (1) 12,000-gallon regular unleaded gasoline underground storage tank (UST) and one (1) 12,000-gallon split-compartment UST containing premium unleaded gasoline and diesel fuel, which were installed on March 24, 2004 (Figure 2). Three (3) 5,000 gallon USTs that contained regular unleaded gasoline, mid-grade unleaded gasoline, and diesel fuel, and a 2,000 gallon UST that contained premium unleaded gasoline were removed from the site on March 19, 2004. Surface water runoff is controlled by drainage ditches and municipal storm sewers. All electrical and telephone lines are positioned above the ground surface (Figure 2).

## **SITE TOPOGRAPHY AND LAND USE**

The elevation of the site is approximately 125 feet above mean sea level (amsl). The site and surrounding properties slope gently to the south and west towards the Mad River, which is located approximately one (1) mile south of the site. Surface water appears to drain in a southerly direction. Surrounding topography rises steeply to the north (Figure 1). The surrounding land use in the immediate vicinity is a mixture of commercial and residential. The Blue Lake Burger Barn resides adjacent and to the east of the site. Blue Lake Boulevard borders the south side of the property line. Elgar's Apartments is adjacent to the west of the site. Residential properties are located to the south of the property.

## **RESULTS OF QUARTERLY SAMPLING**

A quarterly groundwater monitoring program for the groundwater monitoring wells at the site was implemented by SounPacific on July 15, 2002 and is currently scheduled to continue until further notice. In addition, grab water samples from an old, unused domestic well on a property to the south of the site have been collected and analyzed. The purpose of the quarterly groundwater sampling event is to monitor hydrocarbon concentrations onsite and to collect quarterly water level data to document any changes in groundwater levels and track any noticeable changes in groundwater gradient and direction of flow. The three (3) monitoring

wells (MW-2, MW-3, and MW-4) associated with the site were gauged, purged, and sampled on July 18, 2005.

## **FIELD DATA**

Wells gauged: MW-2, MW-3, and MW- 4  
 Groundwater: Ranged from 113.11 to 116.31 feet above mean sea level (Figure 1)  
 Floating Product: Sheen detected in MW-3 and in the unused domestic well DW-1  
 Flow direction: SSW (Figure 3)  
 Groundwater gradient: 0.09 feet per foot (ft/ft) (Figure 3)

On July 18, 2005, the depth to groundwater in the site's three (3) monitoring wells ranged from 8.75 feet below top of casing (btoc) in well MW-2 to 10.96 feet btoc in MW-4. When corrected to mean sea level, water level elevations ranged from 113.11 feet amsl in MW-4 to 116.31 feet amsl in MW-3. Groundwater levels for the July 18, 2005 monitoring event, along with historical levels and elevations are included in Table 1. Groundwater flow was towards the south-southwest at a gradient of 0.09 feet per foot. The groundwater flow and gradient are graphically depicted in Figure 3. Prior to sampling, all wells were purged; the groundwater field parameters for each well are presented below.

### **MONITORING WELL MW-2 GROUNDWATER FIELD PARAMETERS**

<b>Time</b>	<b>Total Vol. Removed/ gal</b>	<b>pH</b>	<b>Temp./ F</b>	<b>Cond./ ms(cm)<sup>-1</sup></b>
<b>11:42 am</b>	<b>0</b>	<b>6.73</b>	<b>61.09</b>	<b>0.146</b>
<b>11:48</b>	<b>1.5</b>	<b>6.61</b>	<b>61.08</b>	<b>0.148</b>
<b>11:55</b>	<b>3</b>	<b>6.80</b>	<b>60.85</b>	<b>0.147</b>
<b>12:00 pm</b>	<b>4.5</b>	<b>6.78</b>	<b>60.85</b>	<b>0.146</b>

**MONITORING WELL MW-3 GROUNDWATER FIELD PARAMETERS**

<b>Time</b>	<b>Total Vol. Removed/ gal</b>	<b>pH</b>	<b>Temp./ F</b>	<b>Cond./ ms(cm)<sup>-1</sup></b>
<b>12:11 pm</b>	<b>0</b>	<b>6.84</b>	<b>62.69</b>	<b>0.233</b>
<b>12:20</b>	<b>1.64</b>	<b>6.87</b>	<b>63.10</b>	<b>0.235</b>
<b>12:25</b>	<b>3.28</b>	<b>6.86</b>	<b>62.58</b>	<b>0.236</b>
<b>12:30</b>	<b>4.92</b>	<b>6.88</b>	<b>62.47</b>	<b>0.231</b>

**MONITORING WELL MW-4 GROUNDWATER FIELD PARAMETERS**

<b>Time</b>	<b>Total Vol. Removed/ gal</b>	<b>pH</b>	<b>Temp./ F</b>	<b>Cond./ ms(cm)<sup>-1</sup></b>
<b>12:45 pm</b>	<b>0</b>	<b>6.95</b>	<b>63.84</b>	<b>0.649</b>
<b>12:52</b>	<b>1.35</b>	<b>6.93</b>	<b>62.59</b>	<b>0.653</b>
<b>12:57</b>	<b>2.70</b>	<b>6.99</b>	<b>62.90</b>	<b>0.648</b>
<b>1:02</b>	<b>4.05</b>	<b>7.00</b>	<b>63.33</b>	<b>0.616</b>

In addition, to the monitoring of the site's three (3) monitoring wells, the old, unused domestic water well (DW-1) on the adjacent property was purged and sampled. It is approximately three (3) feet in diameter and approximately 16 feet bgs in depth. The well's walls are constructed with rock cobbles (average six (6)-inch diameter) and grouted. There is no surface seal to the well, with the top of the well at ground level. In accordance with HCDEH letter of July 25, 2005, and commencing on August 11, 2005, until August 31, 2005, the well was purged, allowed to recharge, and purged again, prior to sampling. The purpose of the excessive purging was to ensure a representative sample of groundwater was obtained to determine if previously reported contaminant levels in grab groundwater samples from DW-1 were representative of contaminant

levels in the groundwater at that location, and allow that information to be used in the preparation of the scheduled Subsurface Investigation Work Plan. Purging was conducted over a 20 day period, during which time the well was purged a total of three (3) times with a total of 750 gallons being removed. The purge water was retained onsite in a holding tank prior to disposal. The groundwater field parameters for the domestic well are presented below.

#### **DOMESTIC WELL DW-1 GROUNDWATER FIELD PARAMETERS**

<b>Time</b>	<b>Total Vol. Removed/ gal</b>	<b>pH</b>	<b>Temp./ F</b>	<b>Cond./ ms(cm)<sup>-1</sup></b>
<b>10:35 am, 8/31/05</b>	<b>750</b>	<b>7.63</b>	<b>67.38</b>	<b>0.238</b>

### **ANALYTICAL RESULTS**

Sampling locations: MW-2, MW-3, MW-4, and DW-1  
 Analyses performed: TPHg, BTXE, MTBE, DIPE, TAME, ETBE, TBA, TPHd, TPHmo  
 Laboratories Used: Basic Labs, Redding, California (CA ELAP #1677)

On July 18, 2005, following suitable well purging, the three (3) groundwater monitoring wells (MW-2, MW-3, and MW-4) on the Blue Lake 76 site were sampled for laboratory analysis. On September 5, 2005, the old, unused domestic well on the adjacent property was sampled, after it had been allowed to recharge, following purging of the well. The analytical results for the current monitoring event are presented on the next page and graphically depicted in Figure 4. The laboratory reports for the sampling of the monitoring wells and the domestic well are included as Appendix A. The historical analytical results for all monitoring wells, since the implementation of groundwater monitoring, are included as Table 2.

	<b><u>MW-2</u></b> <b>(ppb)</b>	<b><u>MW-3</u></b> <b>(ppb)</b>	<b><u>MW-4</u></b> <b>(ppb)</b>	<b><u>DW-1</u></b> <b>(ppb)</b>
<b>TPHg:</b>	ND < 50	ND < 50	ND < 50	<b>1,640</b>
<b>Benzene:</b>	ND < 0.5	ND < 0.5	ND < 0.5	<b>9.8</b>
<b>Toluene:</b>	ND < 0.5	ND < 0.5	ND < 0.5	<b>2.0</b>
<b>Xylenes:</b>	ND < 1.0	ND < 1.0	ND < 1.0	<b>46.2</b>
<b>Ethylbenzene:</b>	ND < 0.5	ND < 0.5	ND < 0.5	<b>15.9</b>
<b>MTBE:</b>	ND < 1.0	ND < 1.0	<b>8.3</b>	<b>380</b>
<b>DIPE:</b>	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1.2
<b>TAME:</b>	ND < 0.5	ND < 0.5	ND < 0.5	<b>4.6</b>
<b>ETBE:</b>	ND < 0.5	ND < 0.5	ND < 0.5	<b>16.3</b>
<b>TBA:</b>	ND < 50	ND < 50	ND < 50	ND < 125
<b>TPHd:</b>	ND < 50	ND < 50	ND < 50	<b>3,580</b>
<b>TPHmo:</b>	ND < 50	ND < 50	ND < 50	<b>1,040</b>

(ND= non-detectable)

Also, on September 5, 2005, the purge water in the holding tank was sampled and analyzed for TPHg, BTXE, five (5) fuel-oxygenates, TPHd, and TPHmo. Laboratory analysis of the sample did not report any TPHg or BTXE; however, MTBE, TPHd, and TPHmo was reported at 6.5 ppb, 244 ppb, and 263 ppb, respectively. The laboratory report is included in Appendix A.

On October 19, 2005, the purge water was removed from the site by Chico Drain Oil. The manifest for the removal and disposal of the water is included as Appendix B.

## **COMMENTS AND RECOMMENDATIONS**

On July 18, 2005, the 13th groundwater monitoring event for the three (3) onsite monitoring wells was conducted at the Blue Lake 76 service station at 291 Blue Lake Boulevard in Blue Lake, California. A summary of the results are presented below.

- The depth to groundwater in the three (3) onsite wells ranged between 8.75 feet btoc (MW-2) to 10.96 feet btoc (MW-4). When corrected to sea level, the water level elevation ranged from 113.11 feet amsl in MW-4 to 116.31 feet amsl in MW-3. Groundwater flow was towards the South-southwest at a gradient of 0.09 feet per foot.
- Groundwater samples from the three (3) onsite monitoring wells were collected and analyzed for TPHg, BTXE, five (5) fuel-oxygenates, TPHd, and TPHmo, following suitable purging of the wells. No TPHg, TPHd, TPHmo, or BTXE were reported in any of the three (3) groundwater monitoring wells. Of the five (5) fuel-oxygenates, only MTBE was reported, being present in well MW-4 at a concentration of 8.3 ppb.
- The unused domestic well (DW-1), located downgradient of the site, was purged and sampled with a total of 750 gallons being removed from the well over a 20 day period. Following recovery of the well, the well was sampled for laboratory analysis. Laboratory analysis of DW-1 reported TPHg at a concentration of 1,640 ppb, with the BTXE compounds at 9.8 ppb, 2.0 ppb, 46.2 ppb, and 15.9 ppb, respectively. Of the five (5) fuel-oxygenates, MTBE was reported at 380 ppb, TAME was reported at 4.6 ppb, and ETBE was reported at 16.3 ppb in well DW-1. Also in DW-1, TPHd was reported at a concentration of 3,580 ppb and TPHmo was reported at a concentration of 1,040 ppb.

Based upon these results the following observations and conclusions have been made.

- TPHg was consistently present in well MW-1, prior to its abandonment. TPHg was detected once in well MW-2 during the first quarter 2004 monitoring event. In well

MW-3, TPHg has never been reported and TPHg has been non-detect in well MW-4 since the fourth quarter 2004. TPHg has been reported consistently in well DW-1 since it was first sampled in the first quarter 2003. The historical fluctuations of TPHg concentrations over time for all wells are shown in Figures 5, 6, 7, 8, and 9.

- BTXE has never been detected in wells MW-2 and MW-3. With the exception of low levels of xylenes and ethylbenzene during the October 2004 monitoring event, no BTXE has been detected in well MW-4 since the second quarter of 2003. In the unused domestic well, concentrations of BTXE have generally shown a reduction over time. See Figures 5 through 9.
- MTBE was present in all wells at the site until the first quarter 2005, when it was confined only to wells MW-4 and DW-1. MTBE concentrations have generally decreased in well MW-4 since the inception of the monitoring. Domestic well DW-1 continues to report MTBE at significantly high levels, although levels have been decreasing during recent monitoring events. See Figures 5 through 9.
- TAME was reported at low levels in well MW-2 during the first three (3) sampling events, but has not been reported since October 2002. In well MW-3, TAME has never been reported. TAME was reported in MW-4 during seven (7) of the last thirteen sampling events at low levels. Well DW-1 reported TAME for the first time during the last sampling event.
- TPHd was detected for the fourth time in well MW-2 during the second quarter 2005. TPHd was detected once in well MW-3 during the well installation sampling event and in well MW-4 the concentrations of TPHd have been fairly consistent and have fluctuated over time. The unused domestic well (DW-1) has reported consistent elevated concentrations (average of 2,000 ppm) of TPHd since the implementation of sampling. Historical fluctuations of TPHd concentrations for all wells are shown in Figures 5 through 9.



- TPHmo was detected for the second time in well MW-2, during the second quarter 2005. However, it should be noted that a reporting limit, lower than that used during previous monitoring events, was used during the past three (3) monitoring events.
- Elevated concentrations of petroleum hydrocarbons that are uncharacteristic with the contaminant levels throughout the remainder of the site, have continuously been reported in grab groundwater samples collected from the old, unused domestic well DW-1. Recent sampling and analysis of a groundwater sample from DW-1, following adequate well purging, reported contaminant levels similar to those reported in the historical grab groundwater samples from DW-1. It is therefore concluded that the levels of contaminants previously reported are representative of those in the surrounding groundwater, and hence the Blue Lake 76 site is the likely source of the contamination.

Based on the results of the July 2005 monitoring event and the September 2005 sampling of the domestic well, data interpretation, and historical results, the following future activities are proposed.

- Groundwater monitoring will be continued until further notice. Groundwater level measurements will be collected from the three (3) onsite monitoring wells to determine groundwater flow direction and gradient. Groundwater sampling and analysis will be conducted for the three (3) groundwater monitoring wells and the old, unused domestic well. Collected groundwater samples from all the wells will be analyzed for TPHg, BTXE, five (5) fuel-oxygenates/additives, TPHd, and TPHmo.
- The requested Subsurface Investigation Work Plan is currently being prepared, and is scheduled to be submitted to HCDEH in December 2005.

## CERTIFICATION

This report was prepared under the direct supervision of a California registered geologist at SounPacific. All information provided in this report including statements, conclusions and recommendations are based solely upon field observations and analyses performed by a state-certified laboratory. SounPacific is not responsible for laboratory errors.

SounPacific promises to perform all its work in a manner that is currently used by members in similar professions working in the same geographic area. SounPacific will do whatever is reasonable to ensure that data collection is accurate. Please note however, that rain, buried utilities, and other factors can influence groundwater depths, directions and other factors beyond what SounPacific could reasonably determine.

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## **ATTACHMENTS**

### **TABLES & CHARTS**

Table 1: Water Levels

Table 2: Groundwater Analytical Results

Chart 1: Hydrograph

### **FIGURES**

Figure 1: Aerial / Topo Map

Figure 2: Site Plan

Figure 3: Groundwater Gradient Map July 2005

Figure 4: Groundwater Analytical Results

Figure 5: MW-1 Hydrocarbon Concentrations vs. Time

Figure 6: MW-2 Hydrocarbon Concentrations vs. Time

Figure 7: MW-3 Hydrocarbon Concentrations vs. Time

Figure 8: MW-4 Hydrocarbon Concentrations vs. Time

Figure 9: DW-1 Hydrocarbon Concentrations vs. Time

### **APPENDICES**

Appendix A: Laboratory Report and Chain-of-Custody Form

Appendix B: Manifest for Disposal of Purge Water

Appendix C: Standard Operating Procedures

Appendix D: Field Notes

# Tables & Chart

**Table 1**  
**Water Levels**

Blue Lake 76  
291 Blue Lake Boulevard  
Blue Lake, California 95525

Sample Location	Date	Depth to Bottom/ Feet BGS	Survey Height/ Feet Above MSL	Depth to Water/ Feet BGS	Adjusted Elevation/ Feet Above MSL	Thickness of Floating Product / Feet
MW-1	5/19/2002	15.26	125.50	8.35	117.15	0.00
	6/16/2002	15.26	125.50	8.62	116.88	0.00
	7/16/2002	15.30	125.50	8.98	116.52	0.00
	8/19/2002	15.25	125.50	9.43	116.07	0.00
	9/11/2002	15.31	125.50	9.57	115.93	0.00
	10/14/2002	15.26	125.50	9.59	115.91	0.00
	11/15/2002	15.29	125.50	8.95	116.55	0.00
	12/16/2002	15.24	125.50	7.82	117.68	0.00
	1/16/2003	15.29	125.50	8.11	117.39	0.00
	2/14/2003	15.30	125.50	8.15	117.35	0.00
	3/12/2003	15.28	125.50	8.13	117.37	0.00
	4/13/2003	15.21	125.50	8.12	117.38	0.00
	7/13/2003	19.12	125.50	8.99	116.51	0.00
	10/22/2003	15.21	125.50	9.11	116.39	0.00
	1/26/2004	15.21	125.50	8.14	117.36	0.00
MW-2	5/19/2002	18.24	124.91	8.72	116.19	0.00
	6/16/2002	18.24	124.91	9.09	115.82	0.00
	7/16/2002	18.21	124.91	9.48	115.43	0.00
	8/19/2002	18.18	124.91	9.61	115.30	0.00
	9/11/2002	18.24	124.91	9.63	115.28	0.00
	10/14/2002	18.21	124.91	9.66	115.25	0.00
	11/15/2002	18.22	124.91	8.72	116.19	0.00
	12/16/2002	18.19	124.91	6.93	117.98	0.00
	1/16/2003	18.23	124.91	7.34	117.57	0.00
	2/14/2003	18.25	124.91	8.07	116.84	0.00
	3/12/2003	18.22	124.91	8.20	116.71	0.00
	4/13/2003	18.15	124.91	8.05	116.86	0.00
	7/13/2003	18.11	124.91	9.20	115.71	0.00
	10/22/2003	18.11	124.91	9.18	115.73	0.00
	1/26/2004	18.11	124.91	7.34	117.57	0.00
	7/31/2004	18.40	124.91	9.85	115.06	0.00
	10/31/2004	18.13	124.91	8.32	116.59	0.00
	1/29/2005	18.41	124.91	7.31	117.60	0.00
	5/14/2005	18.16	124.91	8.04	116.87	0.00
	7/18/2005	18.15	124.91	8.75	116.16	0.00

**Table 1 (cont.)****Water Levels**

Blue Lake 76  
 291 Blue Lake Boulevard  
 Blue Lake, California 95525

Sample Location	Date	Depth to Bottom/ Feet BGS	Survey Height/ Feet Above MSL	Depth to Water/ Feet BGS	Adjusted Elevation/ Feet Above MSL	Thickness of Floating Product / Feet
MW-3	5/19/2002	18.98	125.26	8.77	116.49	0.00
	6/16/2002	18.98	125.26	9.09	116.17	0.00
	7/16/2002	18.98	125.26	10.55	114.71	0.00
	8/19/2002	18.97	125.26	13.65	111.61	0.00
	9/11/2002	18.99	125.26	14.65	110.61	0.00
	10/14/2002	18.97	125.26	15.47	109.79	0.00
	11/15/2002	19.01	125.26	10.62	114.64	0.00
	12/16/2002	19.25	125.26	9.69	115.57	0.00
	1/16/2003	19.00	125.26	8.44	116.82	0.00
	2/14/2003	19.00	125.26	8.56	116.70	0.00
	3/12/2003	19.05	125.26	8.10	117.16	0.00
	4/13/2003	18.91	125.26	8.06	117.20	0.00
	7/13/2003	19.18	125.26	9.11	116.15	0.00
	10/22/2003	19.18	125.26	15.12	110.14	0.00
	1/26/2004	19.18	125.26	8.93	116.33	0.00
	7/31/2004	19.18	125.26	12.47	112.79	0.00
	10/31/2004	19.20	125.26	9.70	115.56	0.00
	1/29/2005	19.21	125.26	8.91	116.35	0.00
	5/14/2005	19.25	125.26	8.53	116.73	0.00
	7/18/2005	19.21	125.26	8.95	116.31	0.00
MW-4	5/19/2002	19.17	124.07	10.80	113.27	0.00
	6/16/2002	19.18	124.07	10.32	113.75	0.00
	7/16/2002	19.18	124.07	10.39	113.68	0.00
	8/19/2002	19.17	124.07	10.39	113.68	0.00
	9/11/2002	19.21	124.07	10.67	113.40	0.00
	10/14/2002	19.17	124.07	10.52	113.55	0.00
	11/15/2002	19.20	124.07	10.21	113.86	0.00
	12/16/2002	19.47	124.07	9.96	114.11	0.00
	1/16/2003	19.21	124.07	9.98	114.09	0.00
	2/14/2003	19.19	124.07	10.82	113.25	0.00
	3/12/2003	19.27	124.07	10.37	113.70	0.00
	4/13/2003	19.11	124.07	9.91	114.16	0.00
	7/13/2003	19.39	124.07	10.67	113.40	0.00
	10/22/2003	19.39	124.07	10.73	113.34	0.00
	1/26/2004	19.39	124.07	10.95	113.12	0.00
	4/28/2004	19.39	124.07	10.65	113.42	0.00
	7/31/2004	19.38	124.07	10.75	113.32	0.00
	10/31/2004	19.39	124.07	10.79	113.28	0.00
	1/29/2005	19.42	124.07	9.90	114.17	0.00
	5/14/2005	19.43	124.07	10.34	113.73	0.00
	7/18/2005	19.41	124.07	10.96	113.11	0.00

Notes:

Bgs: Below Ground Surface

MSL: Mean Sea Level

**Table 2**  
**Quarterly Groundwater Analytical Results**

Blue Lake 76  
291 Blue Lake Boulevard  
Blue Lake, California 95525

Sample Location	Sample Event	Annual Quarter	Sample Date	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Xylenes (ppb)	Ethylbenzene (ppb)	MTBE (ppb)	DIPE (ppb)	TAME (ppb)	ETBE (ppb)	TBA (ppb)	TPHd (ppb)	TPHmo (ppb)	EDB (ppb)	EDC (ppb)
MW-1	Well Installation	2nd Quarter	5/19/2002	1,220	19.1	2.7	29.1	48	242	ND < 0.5	ND < 0.5	ND < 0.5	ND < 40	464	ND < 50	ND < 0.5	ND < 0.5
	1st Quarterly	3rd Quarter	7/16/2002	225	2.6	0.6	1.0	2.0	227	ND < 0.5	9.2	ND < 0.5	ND < 100	ND < 50	ND < 50	ND < 0.5	ND < 0.5
	2nd Quarterly	4th Quarter	10/14/2002	ND < 1,000	ND < 6.0	ND < 6.0	ND < 6.0	ND < 6.0	151	ND < 10	ND < 10	ND < 10	ND < 2,000	ND < 50	ND < 50	ND < 10	ND < 10
	3rd Quarterly	1st Quarter	1/16/2003	6,500	45	7.4	42.8	100	400	ND < 5.0	9.3	ND < 5.0	500	750	ND < 500	ND < 5.0	ND < 5.0
	4th Quarterly	2nd Quarter	4/13/2003	3,000	14	ND < 5.0	6.3	28	210	ND < 5.0	ND < 5.0	ND < 5.0	ND < 50	300	ND < 500	----	----
	5th Quarterly	3rd Quarter	7/13/2003	450	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	210	ND < 0.5	5.1	ND < 0.5	130	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	6th Quarterly	4th Quarter	10/22/2003	180	ND < 5.0	ND < 5.0	ND < 10.0	ND < 5.0	110	ND < 5.0	ND < 5.0	ND < 5.0	79	ND < 50	ND < 500	ND < 5.0	ND < 5.0
	7th Quarterly	1st Quarter	1/26/2004	1,400	25	ND < 5.0	7.1	39	86	ND < 5.0	ND < 5.0	ND < 5.0	ND < 50	ND < 50	ND < 500	ND < 5.0	ND < 5.0
MW-2	Well Installation	2nd Quarter	5/19/2002	ND < 50	ND < 0.3	ND < 0.3	ND < 0.6	ND < 0.3	37.2	ND < 0.5	1.6	ND < 0.5	ND < 40	ND < 50	ND < 50	ND < 0.5	ND < 0.5
	1st Quarterly	3rd Quarter	7/16/2002	ND < 50	ND < 0.3	ND < 0.3	ND < 0.6	ND < 0.3	47.6	ND < 0.5	1.1	ND < 0.5	ND < 100	ND < 50	ND < 50	ND < 0.5	ND < 0.5
	2nd Quarterly	4th Quarter	10/14/2002	ND < 50	ND < 0.3	ND < 0.3	ND < 0.6	ND < 0.3	19.2	ND < 0.5	0.8	ND < 0.5	ND < 100	ND < 50	ND < 50	ND < 0.5	ND < 0.5
	3rd Quarterly	1st Quarter	1/16/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	3.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	4th Quarterly	2nd Quarter	4/13/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	3.8	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	----	----
	5th Quarterly	3rd Quarter	7/13/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	3.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	6th Quarterly	4th Quarter	10/22/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	2.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	7th Quarterly	1st Quarter	1/26/2004	85	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	0.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	9th Quarterly	3rd Quarter	7/31/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	1.6	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	87	ND < 500	----	----
	10th Quarterly	4th Quarter	10/31/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.5	ND < 0.5	0.8	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	96	ND < 500	----	----
	11th Quarterly	1st Quarter	1/29/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	ND < 1.0	ND < 0.5	ND < 5.0	ND < 5.0	ND < 50	67	99	----	----
	12th Quarterly	2nd Quarter	5/14/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	ND < 1.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	55	61	----	----
	13th Quarterly	3rd Quarter	7/18/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	ND < 1.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50.0	ND < 50	ND < 50	----	----
MW-3	Well Installation	2nd Quarter	5/19/2002	ND < 50	ND < 0.3	ND < 0.3	ND < 0.6	ND < 0.3	ND < 2.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 40	440	ND < 50	ND < 0.5	ND < 0.5
	1st Quarterly	3rd Quarter	7/16/2002	ND < 50	ND < 0.3	ND < 0.3	ND < 0.6	ND < 0.3	2.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 100	ND < 50	ND < 50	ND < 0.5	ND < 0.5
	2nd Quarterly	4th Quarter	10/14/2002	ND < 50	ND < 0.3	ND < 0.3	ND < 0.6	ND < 0.3	2.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 100	ND < 50	ND < 50	ND < 0.5	ND < 0.5
	3rd Quarterly	1st Quarter	1/16/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	7.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	4th Quarterly	2nd Quarter	4/13/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	0.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	----	----
	5th Quarterly	3rd Quarter	7/13/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.6	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	6th Quarterly	4th Quarter	10/22/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	2.3	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	7th Quarterly	1st Quarter	1/26/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	0.9	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	9th Quarterly	3rd Quarter	7/31/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	1.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	----	----
	10th Quarterly	4th Quarter	10/31/2004	ND < 50	ND < 0.5	ND < 0.5	ND < 1.5	ND < 0.5	1.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	----	----
	11th Quarterly	1st Quarter	1/29/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	ND < 1.0	ND < 0.5	ND < 5.0	ND < 5.0	ND < 50	ND < 50	ND < 50	----	----
	12th Quarterly	2nd Quarter	5/14/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	ND < 1.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 50	ND < 50	----	----
	13th Quarterly	3rd Quarter	7/18/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	ND < 1.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 50	ND < 50	----	----

**Table 2 (cont.)**  
**Quarterly Groundwater Analytical Results**  
Blue Lake 76  
291 Blue Lake Boulevard  
Blue Lake, California 95525

Sample Location	Sample Event	Annual Quarter	Sample Date	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Xylenes (ppb)	Ethylbenzene (ppb)	MTBE (ppb)	DIPE (ppb)	TAME (ppb)	ETBE (ppb)	TBA (ppb)	TPHd (ppb)	TPHmo (ppb)	EDB (ppb)	EDC (ppb)
MW-4	Well Installation	2nd Quarter	5/19/2002	2,450	4.6	2.2	236	154	107	ND < 0.5	ND < 0.5	ND < 0.5	ND < 40	363	ND < 50	ND < 0.5	ND < 0.5
	1st Quarterly	3rd Quarter	7/16/2002	1,070	ND < 6.0	ND < 6.0	26.3	81.8	141	ND < 10	ND < 10	ND < 10	ND < 2,000	ND < 50	ND < 50	ND < 10	ND < 10
	2nd Quarterly	4th Quarter	10/14/2002	535	2.0	ND < 0.3	ND < 0.6	1.8	73.6	ND < 0.5	5.0	ND < 0.5	ND < 100	538	ND < 50	ND < 0.5	ND < 0.5
	3rd Quarterly	1st Quarter	1/16/2003	260	0.6	ND < 0.5	ND < 1.0	ND < 0.5	100	ND < 0.5	3.0	ND < 0.5	12	53	ND < 500	ND < 0.5	ND < 0.5
	4th Quarterly	2nd Quarter	4/13/2003	66	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	25	ND < 0.5	0.7	ND < 0.5	ND < 5.0	ND < 50	ND < 500	----	----
	5th Quarterly	3rd Quarter	7/13/2003	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	17	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	6th Quarterly	4th Quarter	10/22/2003	430	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	68	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	76	ND < 500	ND < 0.5	ND < 0.5
	7th Quarterly	1st Quarter	1/26/2004	71	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	22	ND < 0.5	0.8	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	8th Quarterly	2nd Quarter	4/28/2004	51	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	15	ND < 0.5	0.5	ND < 0.5	ND < 5.0	ND < 50	ND < 500	ND < 0.5	ND < 0.5
	9th Quarterly	3rd Quarter	7/31/2004	140	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	28	ND < 0.5	1.4	ND < 0.5	ND < 5.0	110	ND < 500	----	----
	10th Quarterly	4th Quarter	10/31/2004	100	ND < 0.5	ND < 0.5	1.3	0.5	76	ND < 0.5	3.5	ND < 0.5	ND < 5.0	82	ND < 500	----	----
	11th Quarterly	1st Quarter	1/29/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	23.3	ND < 0.5	ND < 5.0	ND < 5.0	ND < 50	ND < 50	ND < 50	----	----
	12th Quarterly	2nd Quarter	5/14/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	12.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 50	ND < 50	----	----
	13th Quarterly	3rd Quarter	7/18/2005	ND < 50	ND < 0.5	ND < 0.5	ND < 1.0	ND < 0.5	8.3	ND < 0.5	ND < 0.5	ND < 0.5	ND < 50	ND < 50	ND < 50	----	----
Domestic Well	Well Installation	2nd Quarter	5/19/2002	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	1st Quarterly	3rd Quarter	7/16/2002	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	2nd Quarterly	4th Quarter	10/14/2002	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	3rd Quarterly	1st Quarter	1/16/2003	16,000	39	11	460	130	180	----	----	----	----	2,500	----	----	----
	4th Quarterly	2nd Quarter	4/13/2003	4,200	25	5.1	239	31	130	----	----	----	----	2,200	----	----	----
	5th Quarterly	3rd Quarter	7/13/2003	10,000	46	10	416	190	480	----	----	----	----	3,200	----	----	----
	6th Quarterly	4th Quarter	10/22/2003	5,200	29	ND < 5.0	218	39	880	----	----	----	----	1,200	----	----	----
	7th Quarterly	1st Quarter	1/26/2004	5,500	19	ND < 5.0	152	ND < 5.0	79	----	----	----	----	ND < 50	----	----	----
	8th Quarterly	2nd Quarter	4/28/2004	7,300	21	ND < 5.0	128	55	100	----	----	----	----	3,000	----	----	----
	9th Quarterly	3rd Quarter	7/31/2004	5,200	23	3.9	168	55	580	----	----	----	----	3,300	----	----	----
	10th Quarterly	4th Quarter	10/31/2004	4,400	25	5.0	175	50	160	ND < 5.0	ND < 5.0	5.8	ND < 50	2,300	ND < 500	----	----
	11th Quarterly	1st Quarter	1/29/2005	1,120	9.3	2.2	53.5	32.0	47.5	ND < 0.5	ND < 5.0	ND<5.0	ND<50	1,780	ND < 50	----	----
	13th Quarterly	3rd Quarter	9/5/2005	1,640	9.8	2.0	46.2	15.9	380	ND < 1.2	4.6	16.3	ND < 125	3,580	1,040	----	----

**Notes:**

TPHg: Total petroleum hydrocarbons as gasoline

MTBE: Methyl tertiary butyl ether

DIPE: Diisopropyl ether

TAME: Tertiary amyl methyl ether

TPHd: Total petroleum hydrocarbons as diesel

EDB: 1,2-Dibromoethane

EDC: 1,2-Dichloroethane

TBA: Tertiary butanol

ETBE: Ethyl tertiary butyl ether

TPHmo: Total petroleum hydrocarbons as motor oil

ppb: parts per billion = µg/l = .001 mg/l = 0.001 ppm

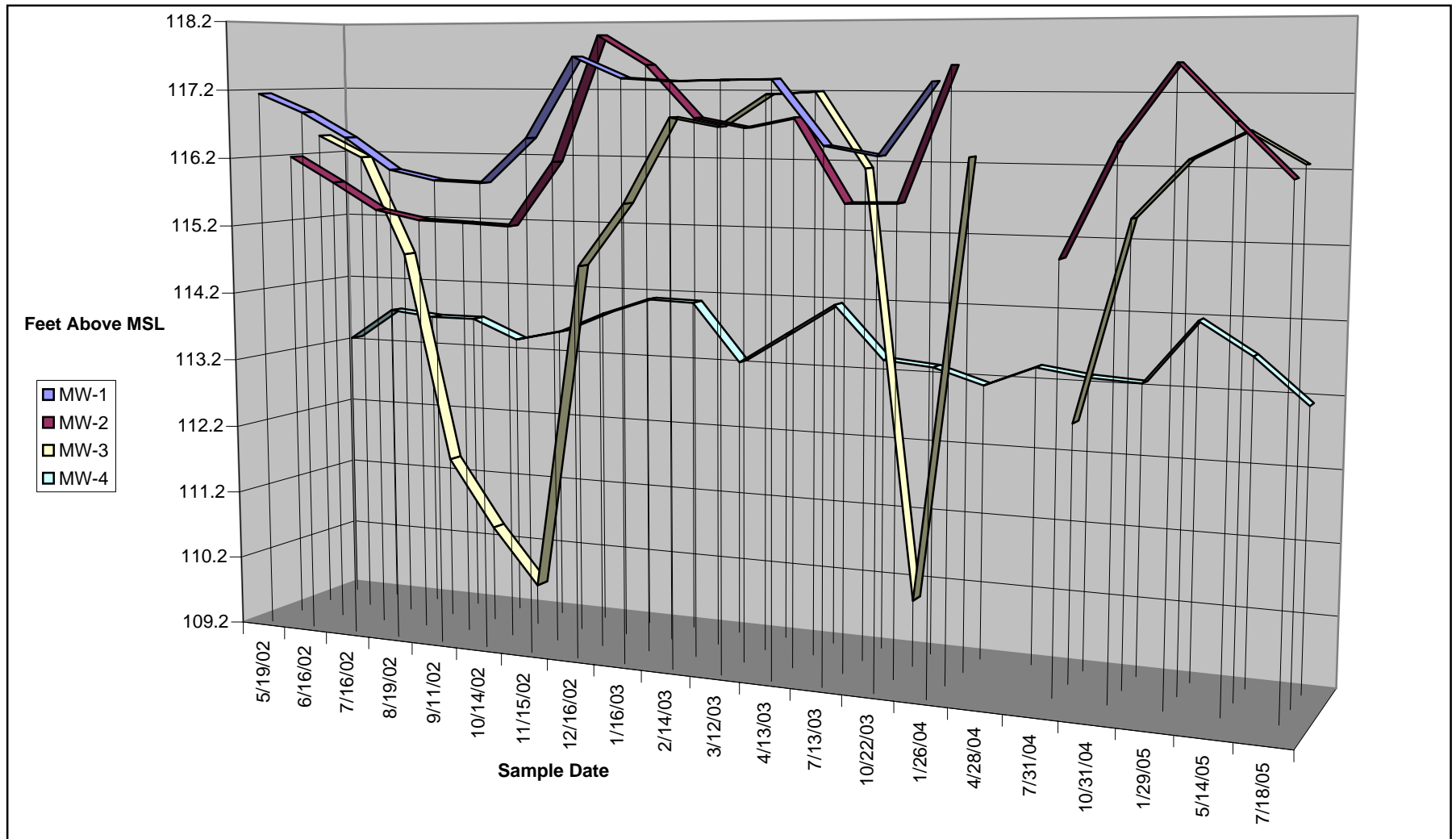
ND: Not detected. Sample was detected at or below the method detection limit as shown.

NT: Not tested.

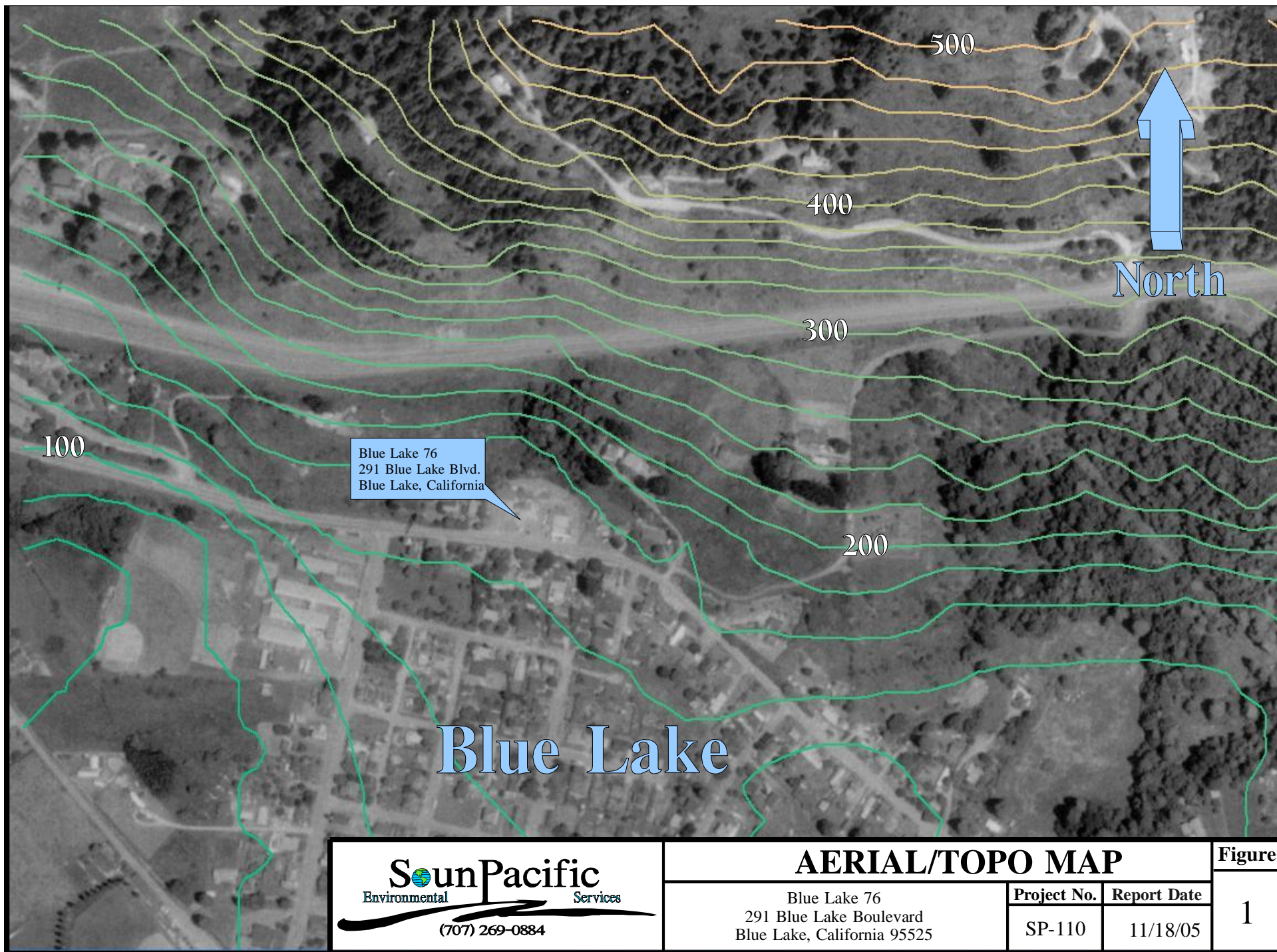


# Chart 1 Hydrograph

Blue Lake 76  
291 Blue Lake Boulevard  
Blue Lake, California 95525

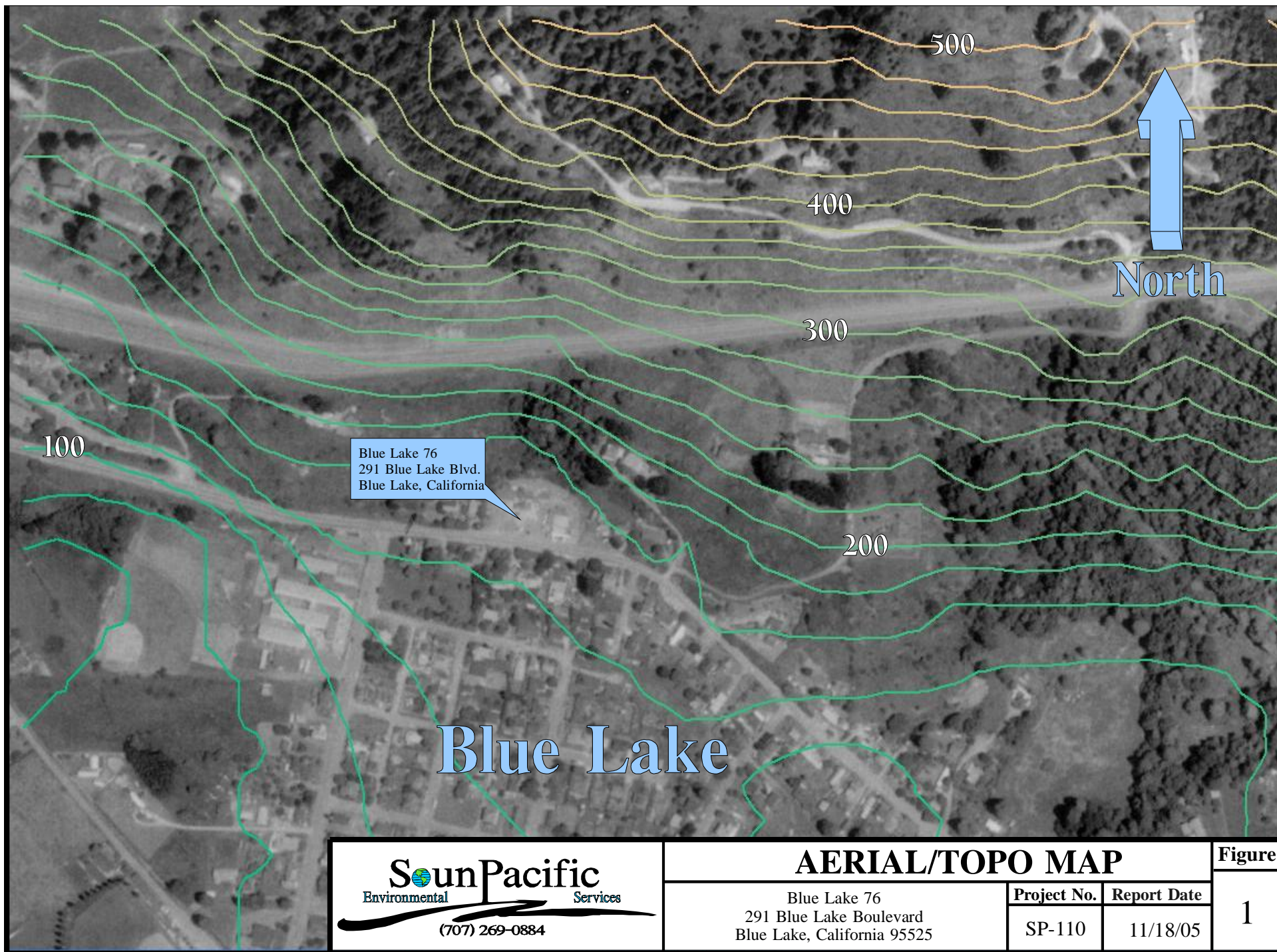


# Figures



	<b>AERIAL/TOPO MAP</b>		<b>Figure</b>
	Blue Lake 76 291 Blue Lake Boulevard Blue Lake, California 95525	<b>Project No.</b>	<b>Report Date</b>
		SP-110	11/18/05
			1
















	<b>AERIAL/TOPO MAP</b>		<b>Figure</b>
	Blue Lake 76 291 Blue Lake Boulevard Blue Lake, California 95525	<b>Project No.</b>	<b>Report Date</b>
		SP-110	11/18/05
			1



# LEGEND

- DW-1  Domestic Well
- MW-4  Monitoring Well
-  Cement Surface
-  Vegetation
-  Asphalt Surface
-  Water
-  Sewer Line
-  Above Ground Electric Line
-  Telephone
-  Fence
-  Junk Pile

0 30 60  
APPROXIMATE SCALE IN FEET

Elgar's  
Apartments

PL

Blue Lake Boulevard

Sidewalk

(w)

Orchard

NORTH

DW-1

Shed

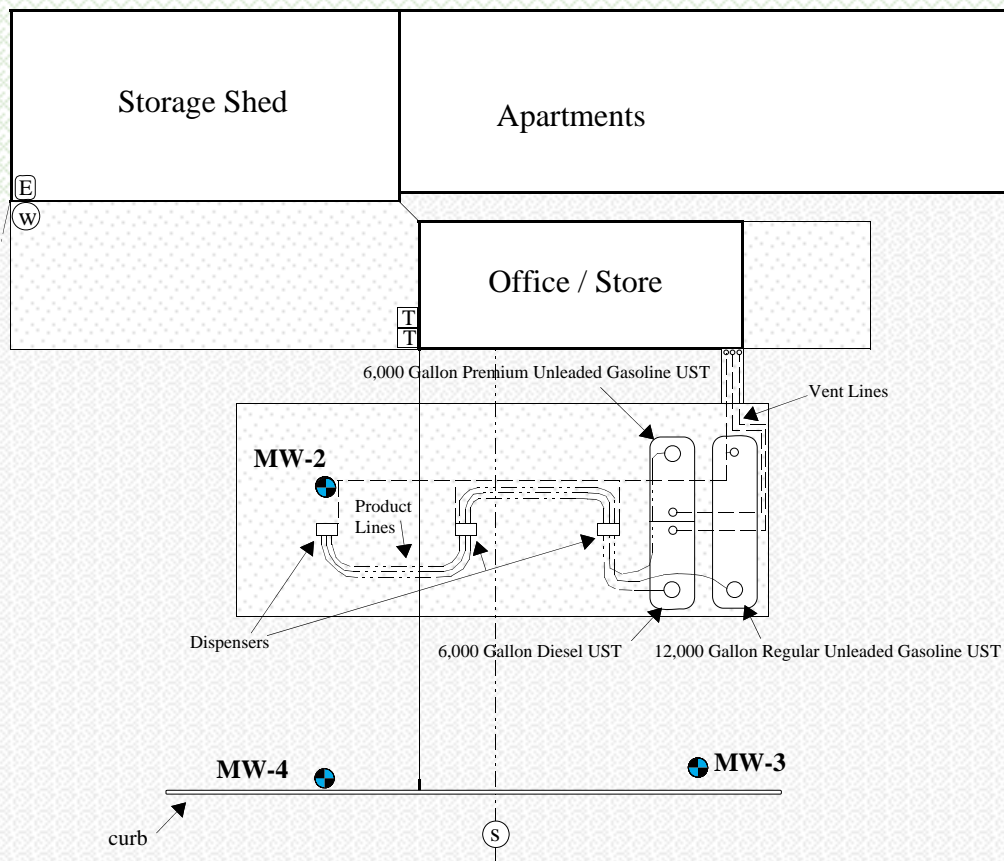
Shed

Shed

Driveway

Hedge

Private Residence



## SITE PLAN

Figure

Blue Lake 76  
291 Blue Lake Boulevard  
Blue Lake, California 95525

Project No.

Report Date

SP-110

11/18/05

2



# LEGEND

- DW-1 Domestic Well  
MW-4 Monitoring Well

0 30 60  
APPROXIMATE SCALE IN FEET

Elgar's  
Apartments

PL

Blue Lake Boulevard

Storage Shed

Apartments

Office / Store

## MW-2

Casing Elevation: 124.91  
Depth to Water: 8.75  
Elevation Amsl: 116.16

## MW-4

Casing Elevation: 124.07  
Depth to Water: 10.96  
Elevation Amsl: 113.11

## MW-3

Casing Elevation: 125.26  
Depth to Water: 8.95  
Elevation Amsl: 116.31

curb

Sidewalk

Orchard

NORTH

Shed

Driveway

Hedge

Private Residence

**GW Flow Direction: SSW**  
**GW Gradient: 0.09 ft/ft**

## GROUNDWATER LEVEL CONTOUR MAP JULY 2005

Figure

Blue Lake 76  
291 Blue Lake Boulevard  
Blue Lake, California 95525

Project No.

Project Date

3

SP-110

11/18/05

Environmental

Services



# LEGEND

- DW-1 Domestic Well  
 MW-4 Monitoring Well

0 30 60  
 APPROXIMATE SCALE IN FEET

Elgar's  
 Apartments

PL

Blue Lake Boulevard

Sidewalk

NORTH

Storage Shed

Apartments

Office / Store

Groundwater Results  
 MW-2

All results non-detect

6,000 Gallon Premium Unleaded Gasoline UST

Vent Lines

Product Lines

Dispensers

6,000 Gallon Diesel UST

12,000 Gallon Regular Unleaded Gasoline UST

Groundwater Results  
 MW-4

MTBE 8.3 ppb

curb

Groundwater Results  
 MW-3

All results non-detect

Groundwater Results  
 DW-1  
 (sampled 9/5/05)

TPHg	1,640	ppb
BTXE	73.9	ppb
MTBE	380	ppb
TAME	4.6	ppb
ETBE	16.3	ppb
TPHd	3,580	ppb
TPHmo	1,040	ppb

Shed

Hedge

Private Residence

Shed

Shed

## GROUNDWATER ANALYTICAL RESULTS

Figure

Blue Lake 76  
 291 Blue Lake Boulevard  
 Blue Lake, California 95525

Project No.

Report Date

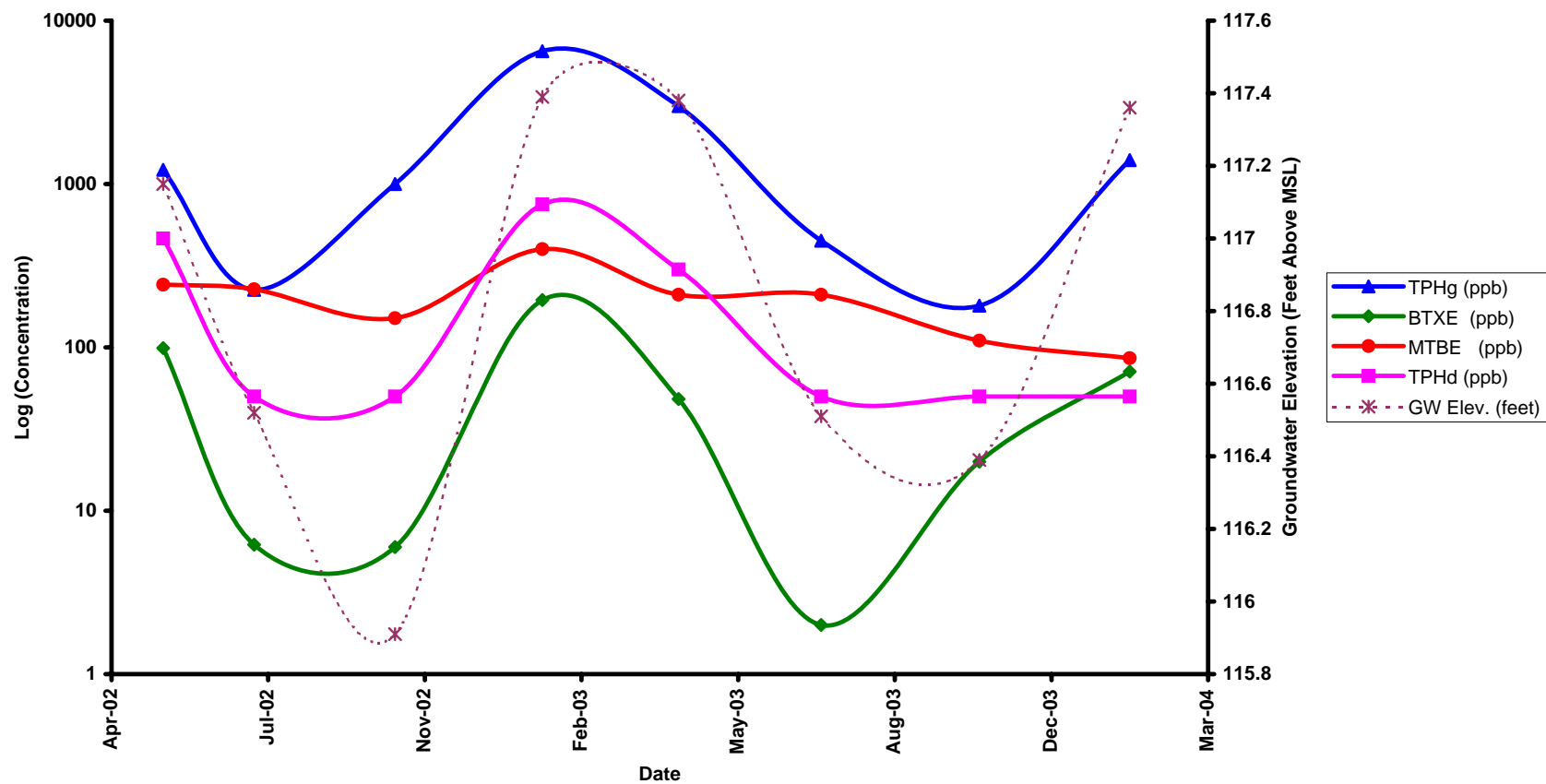
SP-110

11/18/05

4

Environmental

Services



**SounPacific**  
 Environmental Services  
 (707) 269-0884

### MW-1 HYDROCARBON CONCENTRATIONS VS. TIME

Blue Lake 76  
 291 Blue Lake Boulevard  
 Blue Lake, California 95525

Project No.

SP-110

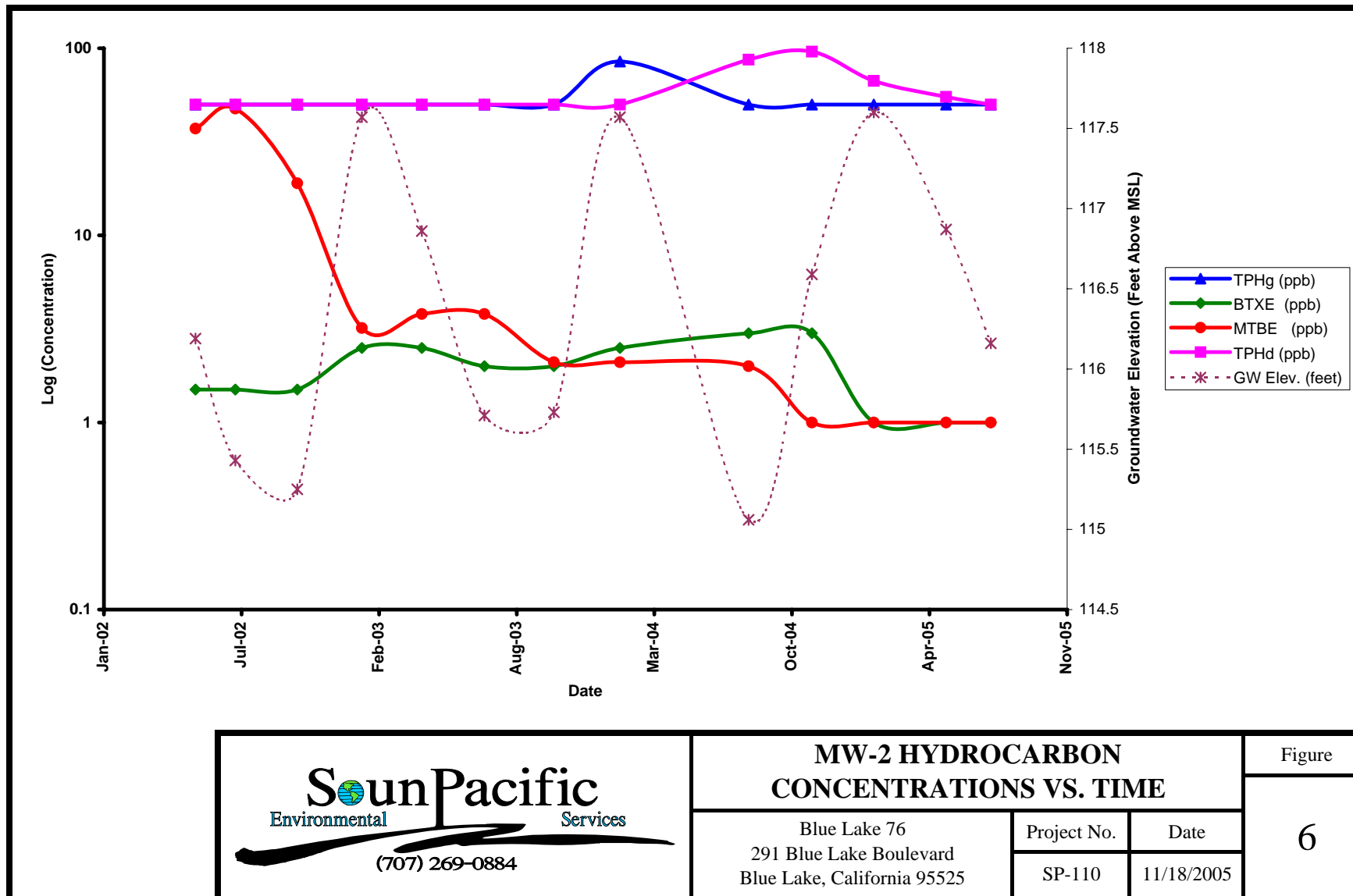
Date

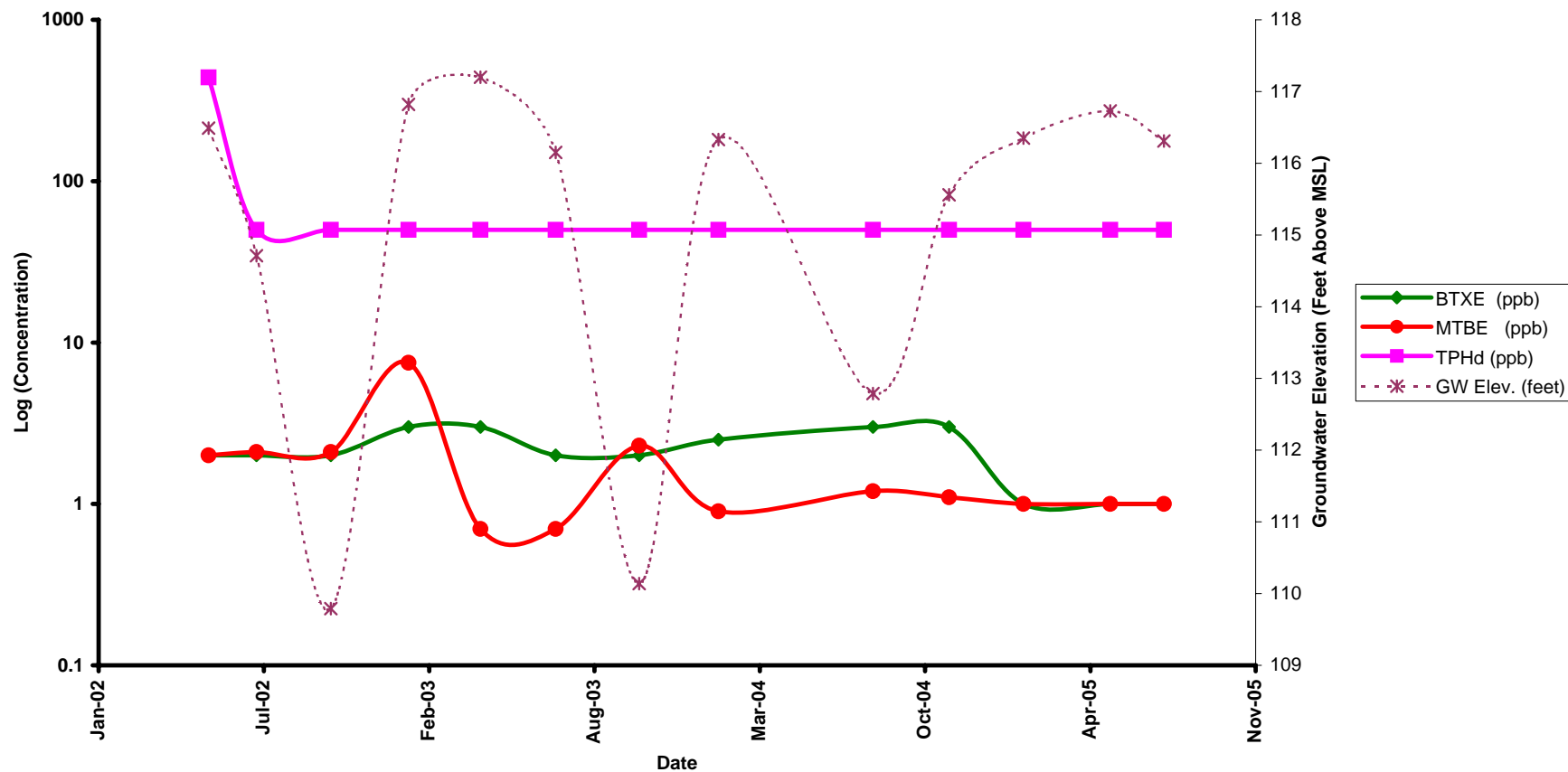
11/18/2005

Figure

5







### MW-3 HYDROCARBON CONCENTRATIONS VS. TIME

Blue Lake 76  
 291 Blue Lake Boulevard  
 Blue Lake, California 95525

Project No.

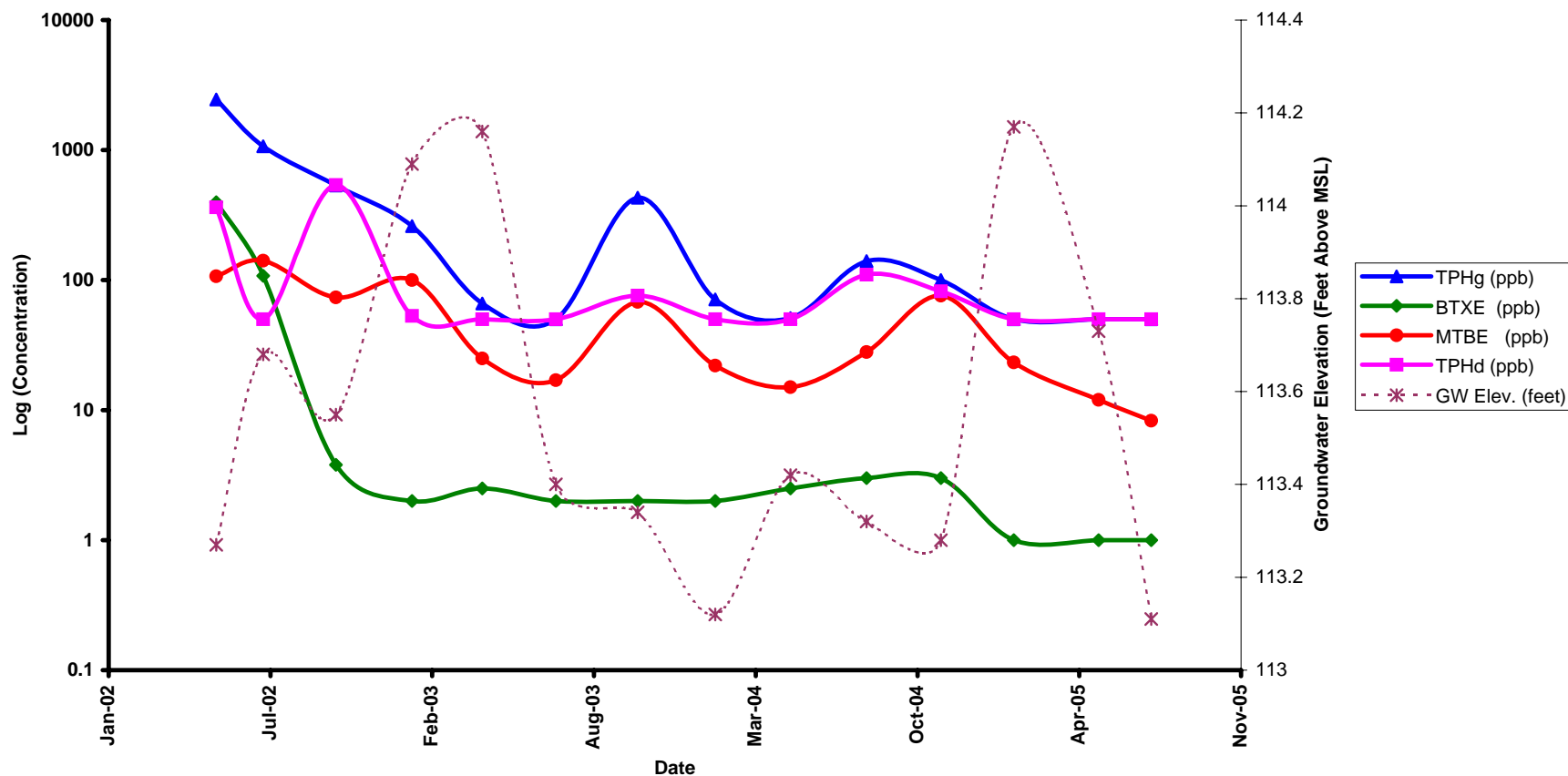
SP-110

Date

11/18/2005

Figure

7



**SounPacific**  
 Environmental Services  
 (707) 269-0884

### MW-4 HYDROCARBON CONCENTRATIONS VS. TIME

Blue Lake 76  
 291 Blue Lake Boulevard  
 Blue Lake, California 95525

Project No.

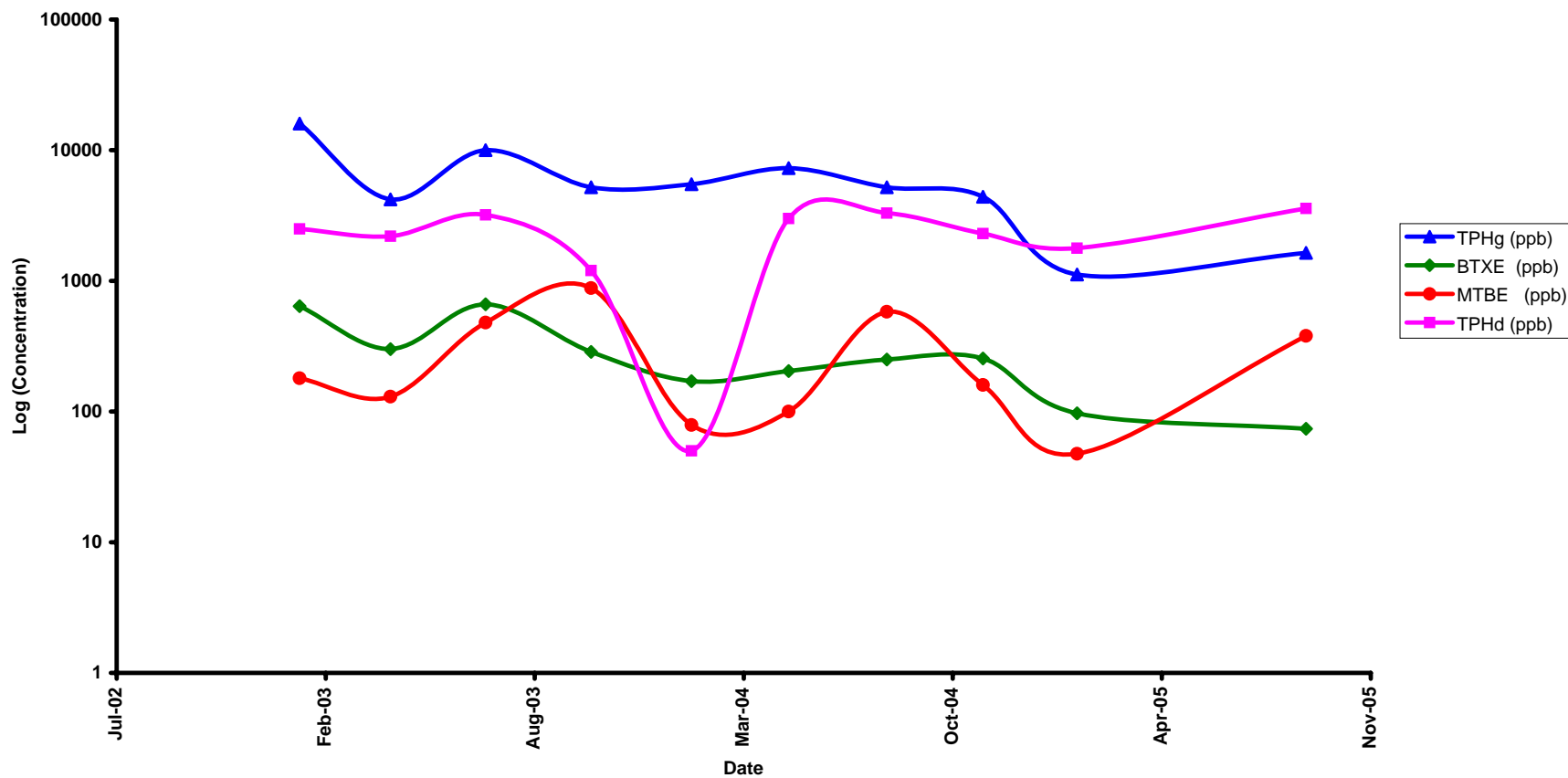
SP-110

Date

11/18/2005

Figure

8



### DW-1 HYDROCARBON CONCENTRATIONS VS. TIME

Blue Lake 76  
 291 Blue Lake Boulevard  
 Blue Lake, California 95525

Project No.

SP-110

Date

11/18/2005

Figure

9

# Appendices

# **Appendix A**



www.basiclab.com

voice 530.243.7234 2218 Railroad Avenue  
fax 530.243.7494 Redding, California 96001

September 21, 2005

**Lab ID: 5090368**

Andy Malone  
SOUNPACIFIC  
4612 GREENWOOD HEIGHTS DR  
KNEELAND, CA 95549  
RE: BLUE LAKE 76 SP-110

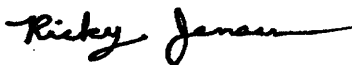
Dear Andy Malone,

Enclosed are the analysis results for Work Order number 5090368. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

  
For



Ricky D. Jensen  
Laboratory Director  
California ELAP Certification Number 1677



www.basiclab.com

voice 530.243.7234 2218 Railroad Avenue  
fax 530.243.7494 Redding, California 96001

**Report To:** SOUNPACIFIC  
4612 GREENWOOD HEIGHTS DR  
KNEELAND, CA 95549

**Attention:** Andy Malone  
**Project:** BLUE LAKE 76 SP-110

**Description:** DW-1

**Matrix:** Water

**Lab ID:** 5090368-01

**Lab No:** 5090368  
**Reported:** 09/23/05  
**Phone:** 707-269-0884  
**P.O. #**

**Sampled:** 09/05/05 00:00

**Received:** 09/12/05 11:39

## Volatile Organic Compounds

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Gasoline	ug/l	1640	R-07		125	EPA 8015/8260	09/13/05	09/13/05	B5I0300
Benzene	"	9.8	R-07		1.2	"	"	"	"
Toluene	"	2.0	R-07		1.2	"	"	"	"
Ethylbenzene	"	15.9	R-07		1.2	"	"	"	"
Xylenes (total)	"	46.2	R-07		2.5	"	"	"	"
Methyl tert-butyl ether	"	380	R-07		20.0	"	09/13/05	"	"
Di-isopropyl ether	"	ND	R-07		1.2	"	09/13/05	"	"
Tert-amyl methyl ether	"	4.6	R-07		1.2	"	"	"	"
Ethyl tert-butyl ether	"	16.3	R-07		1.2	"	"	"	"
Tert-butyl alcohol	"	ND	R-07		125	"	"	"	"
Surrogate: 4-Bromofluorobenzene		100 %		43-155		"	"	"	"

## TPH Diesel & Motor Oil

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Diesel	ug/l	3580	I-03, QM-4X		50	EPA 8015 MOD	09/13/05	09/12/05	B5I0238
Motor Oil	"	1040	I-03, QM-4X		50	"	"	"	"
Surrogate: Octacosane		98.1 %	I-03	50-150		"	"	"	"

  
Approved By

Basic Laboratory, Inc.  
California D.O.H.S. Cert #1677





www.basiclab.com

voice 530.243.7234 2218 Railroad Avenue  
fax 530.243.7494 Redding, California 96001

**Report To:** SOUNPACIFIC  
4612 GREENWOOD HEIGHTS DR  
KNEELAND, CA 95549

**Attention:** Andy Malone

**Project:** BLUE LAKE 76 SP-110

**Description:** POLY TANK

**Matrix:** Water

**Lab ID:** 5090368-02

**Lab No:** 5090368  
**Reported:** 09/23/05  
**Phone:** 707-269-0884  
**P.O. #**

**Sampled:** 09/05/05 00:00

**Received:** 09/12/05 11:39

## Volatile Organic Compounds

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Gasoline	ug/l	ND			50.0	EPA 8015/8260	09/13/05	09/13/05	B5I0300
Benzene	"	ND			0.5	"	"	"	"
Toluene	"	ND			0.5	"	"	"	"
Ethylbenzene	"	ND			0.5	"	"	"	"
Xylenes (total)	"	ND			1.0	"	"	"	"
Methyl tert-butyl ether	"	6.5			1.0	"	"	"	"
Di-isopropyl ether	"	ND			0.5	"	"	"	"
Tert-amyl methyl ether	"	ND			0.5	"	"	"	"
Ethyl tert-butyl ether	"	ND			0.5	"	"	"	"
Tert-butyl alcohol	"	ND			50.0	"	"	"	"
Surrogate: 4-Bromofluorobenzene		91.2 %			43-155	"	"	"	"

## TPH Diesel & Motor Oil

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
Diesel	ug/l	244	I-03, QM-4X		50	EPA 8015 MOD	09/13/05	09/12/05	B5I0238
Motor Oil	"	263	I-03, QM-4X		50	"	"	"	"
Surrogate: Octacosane		121 %	I-03		50-150	"	"	"	"

  
Approved By

Basic Laboratory, Inc.  
California D.O.H.S. Cert #1677



www.basiclab.com

voice 530.243.7234 2218 Railroad Avenue  
fax 530.243.7494 Redding, California 96001

**Report To:** SOUNPACIFIC  
4612 GREENWOOD HEIGHTS DR  
KNEELAND, CA 95549  
**Attention:** Andy Malone  
**Project:** BLUE LAKE 76 SP-110

**Lab No:** 5090368  
**Reported:** 09/22/05  
**Phone:** 707-269-0884  
**P.O. #**

### Notes and Definitions

R-07 The sample was diluted due to the presence of high levels of target analytes resulting in elevated reporting limits.  
QM-4X The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to the analyte concentration being greater than 4 times the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.  
I-03 Sample was received past the EPA recommended holding time.  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the detection limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
< Less than reporting limit  
≤ Less than or equal to reporting limit  
> Greater than reporting limit  
≥ Greater than or equal to reporting limit  
MDL Method Detection Limit  
RL/ML Minimum Level of Quantitation  
MCL/AL Maximum Contaminant Level/Action Level  
mg/kg Results reported as wet weight  
TTLC Total Threshold Limit Concentration  
STLC Soluble Threshold Limit Concentration  
TCLP Toxicity Characteristic Leachate Procedure

  
Approved By

Basic Laboratory, Inc.  
California D.O.H.S. Cert #1677



## **Appendix B**

E.P.A. # CAD 980694103

CHP # 225559

E.P.A. CAL 930256136

HAULER # 0812

%Lube \_\_\_\_\_ %Ind \_\_\_\_\_

**CHICO DRAIN OIL SERVICE, L.L.C.**TAG # **140766**

530-345-9043

Since 1972

Date:

7/21/2005

1618 W 5th St.

1-800-733-9043

Chico, CA 95926

Contact

Gleg**Generator/Job Location****Billing Information**

Name	76 500 man			Name	Sound Pacific		
Address	291 Blue Lake Blvd			Address	PO Box 13		
City	Blue Lake	State	CA	City	Kneelead	State	CA
Zip	95528			Zip	95547-001		
Phone	707 668-5688			Phone			
EPA ID	NH			P.O.	Customer Code		
Billing Method							

Product	Waste Code	Manifest Number	Quantity	Units	Price	Amount
Used Oil/Mixed Oil Non-RCRA Hazardous Waste Liquid	221			GAL		
Used Antifreeze - Non-RCRA Hazardous Waste Liquid	343			GAL		
Oil Water Mixed - Non-RCRA Hazardous Waste Liquid	221			GAL		
Non-Hazardous Water	N/A	NH 221827	1,055	GAL	1.20	1266
Oil Sludge - Non-RCRA Hazardous Waste Liquid	222			GAL		
Drained Used Oil Filters	N/A			DRUM		
Non-RCRA Hazardous Waste (Solid-Liquid)						
Parts Washer Service	N/A			N/A		
Haz-Waste Drums (Empty)	N/A			DRUM		
Drum Delivery	N/A			DRUM		
Disposal Drums	N/A			DRUMS		
Transportation/Stand-by	N/A			HRS		
Other:						
U.S. DOT Description				DRUM		

Clor-O-Tect:	Pace	Fa8	PPM	Per Test	Total:
					1266
Comments	Total:				
TSOF	Chico Drain Oil Service, LLC 1618 W. 5th St. Chico CA 95926		Driver Signature <u>Chico</u> Truck # 139	Customer Signature Read and Approved <u>Marty Larsen</u> Print Name Marty Larsen	
Manifest Number	<u>221827</u>		Date	10-19-05	

GENERATOR CERTIFIES THAT IT HAS A PROGRAM IN PLACE TO REDUCE THE VOLUME AND TOXICITY OF WASTE GENERATED TO THE DEGREE IT HAS DETERMINED TO BE ECONOMICALLY PRACTICABLE. WHEN USING THE CONSOLIDATED MANIFESTING PROCEDURE, CHICO DRAIN OIL SERVICE AGREES WITH THE GENERATOR LISTED ABOVE TO HAVE THE GENERATOR'S HAZARDOUS WASTE TRANSPORTED TO AN AUTHORIZED HAZARDOUS WASTE TREATMENT FACILITY FOR APPROPRIATE TREATMENT.

**Certificate of Recycling**

CHICO DRAIN OIL SERVICE OFFERS PICKUP, TRANSPORTATION, AND RECYCLING OF YOUR WASTE STREAMS. CHICO DRAIN OIL SERVICE ASSURES THAT THE USED OIL, USED ANTIFREEZE, OIL WATER, DRUMMED WASTE AND USED OIL FILTERS WILL MEET OR EXCEED ALL EPA AND STATE OF CALIFORNIA REQUIREMENTS. CHICO DRAIN OIL SERVICE ALSO OFFERS VACUUM CLEANING OF CRAWLERS, PARTS WASHERS, AND PUMPS. YOUR HAZARDOUS WASTE NEEDS OF DRUM WASTE FROM RCRA TO OILY LIQUIDS AND SOLIDS CAN BE MANAGED. CHICO DRAIN OIL SERVICE OFFERS A COMPLETE LINE OF ENVIRONMENTALLY SAFE PARTS WASHERS TO REPLACE OUTDATED SOLVENT MACHINES.

**IMPORTANT NOTICE REGARDING THE DISPOSITION OF YOUR USED OIL PLEASE SIGN AFTER READING**

Cus (used oil transporter) hereby advises SP (generator's) shipment of used oil may be transported to a facility that is required to comply with federal regulations applicable to management of used oil, but that is not required to comply with the more stringent requirements applicable to hazardous waste management facilities. California facilities that handle or process used oil are required to meet those more stringent requirements, and some out-of-state facilities that process used oil also meet those requirements. These include more stringent leak detection and prevention requirements, engineering certifications of tank integrity, and financial assurances for closure and accidental releases. It is illegal to send used oil to out-of-state facilities that comply only with federal used oil management standards and not those more stringent requirements.

The notification is for information purposes only

(signed, Transporter) Date: 10-19-05(signed, Generator) Date: 10-19-05

# **Appendix C**



# **Standard Operating Procedures**

## **Groundwater Level Measurements and Free Phase Hydrocarbon Measurements**

All SounPacific staff and contractors shall adopt the following procedures any time that groundwater elevations are determined for the purposes of establishing groundwater gradient and direction, and prior to any sampling event.

Wells are to be tested for free phase hydrocarbons (free product) before the first development or sampling of any new well, and in any well that has historically contained free product.

### **Equipment Checklist**

- ☐ Combination water level / free phase hydrocarbon indicator probe (probe)
- ☐ Gauging Data / Purge Calculations Sheet
- ☐ Pencil or Pen/sharpie
- ☐ Disposable Gloves
- ☐ Distilled Water and or know water source on site that is clean
- ☐ Alconox (powder) or Liquinox (liquid) non-phosphate cleaners—do not use soap!
- ☐ Buckets or Tubs for decontamination station
- ☐ Tools necessary to access wells
- ☐ Site Safety Plan
- ☐ This Standard Operating Procedure
- ☐ Notify Job site business that you will be arriving to conduct work.

### **Procedure**

1. Review Site Safety Plan and utilize personal protection appropriate for the contaminants that may be encountered.
2. Access and open all monitoring wells to be measured. Allow wells to equilibrate for approximately 15 minutes before taking any measurements.

3. Decontaminate probe with Alconox or Liquinox solution, and rinse with distilled water.
4. Determine the diameter of the well to be measured and indicate this on the Gauging Data / Purge Calculations Sheet.
5. Words of caution: Please be careful with water level and product meters probes are not attached with high strength material so please make sure to avoid catching the end on anything in the well and make sure not to wind reel to the point that it could pull on the probe. ***If product is suspect in a well, go to step 6, if no product is suspected go to step 7 below.***
6. **When product is present or suspected:** use the product level meter. Clip the static charge clamp to the side of the well casing. Then lower probe into the well through the product/water interface about one foot if possible. Then slowly raise the probe back up through the product/water interface layer and record the level as the tone changes from solid to broken-record this level in the Gauging Data / Purge Calculations Sheet to the nearest 0.01 foot (DTP). Continue to raise the probe up through the product until the tone stops completely-record this level on the Gauging Data / Purge Calculations Sheet to the nearest 0.01 foot (DTW). Then go to step 8.
7. **When no product is present or suspected:** If no free product is present, record the depth of the water (to the nearest 0.01 foot) relative to the painted black mark on the top of the well casing. Leave the probe in the well just a hair above the water level to ensure the well as equilibrated. As the well rises, the tone will sound. Make sure no increase in water levels have occurred in over a ten-minute period. Water levels can lower as well as rise. Make sure you note when the level you keep lowering the probe to has remained stable for at least ten minutes. Once this has been accomplished, please record this level in the Gauging Data / Purge Calculations Sheet to the nearest 0.01 foot (DTW).
8. Turn off the probe, and use the probe to determine the depth to the bottom of the well relative to the top of the well casing. This is the depth to bottom measurement (DTB).
9. Decontaminate probe and tape by washing in an Alconox/Liquinox solution (***read directions on solution for ratio of water to cleanser***) and use the toothbrush provided to remove any foreign substance from the probe and tape. Then triple rinse probe and tape with clean water and then proceed to take measurements in the next well.
10. If sampling is to occur, proceed to implement SounPacific's Standard Operating Procedure for Monitoring Well Purging and Sampling. If no sampling is to be performed, close and secure all wells and caps.





## Standard Operating Procedures

### Monitoring Well Purging and Groundwater Sampling

All SounPacific employees and contractors shall adopt the following procedures any time that groundwater samples are to be taken from an existing groundwater monitoring well.

Prior to the implementation of these procedures, the groundwater level **MUST** be measured and the presence of free phase hydrocarbons determined in accordance with SounPacific's Standard Operating Procedures for Groundwater Level Measurements and Free Phase Hydrocarbon Measurements.

### Equipment Checklist

- ☐ **Gauging Data / Purge Calculations Sheet used for water level determination**
- ☐ Chain of Custody Form
- ☐ pH/ Conductivity / Temperature meter
- ☐ Pencil or Pen
- ☐ Indelible Marker
- ☐ Calculator
- ☐ Disposable Gloves
- ☐ Distilled Water
- ☐ Alconox/liquinox liquid or powdered non-phosphate cleaner
- ☐ Buckets or Tubs for decontamination station
- ☐ Bottom-filling bailer or pumping device for purging
- ☐ Disposable bottom-filling bailer and emptying device for sampling
- ☐ String, twine or fishing line for bailers
- ☐ Sample containers appropriate for intended analytical method (check with lab)
- ☐ Sample labels
- ☐ Site Safety Plan
- ☐ Tools necessary to access wells
- ☐ Drum space on site adequate for sampling event

### **Procedure**

1. Review Site Safety Plan and utilize personal protection appropriate for the contaminants that may be encountered.
2. Measure groundwater levels and check for the presence of free product in accordance with the Standard Operating Procedures for Groundwater Level Measurements and Free Phase Hydrocarbon Measurements.

### **Purging**

3. Calculate and record the volume of standing water in each well using the information provided on the Gauging Data / Purge Calculations sheet.  
 $(DTB-DTW) \times \text{Conversion Factor} = \text{Casing Volume}$ .
4. The purge volume shall be at least three times and no more than seven times the volume of standing water (the casing volume).
5. Purge the well by bailing or pumping water from the well into a calibrated receptacle, such as a five gallon bucket or tub with markings to indicate one gallon increments. Collect purgeate in a 55 gallon labeled drum and store on site. Drum labels should include the date, contents, site number, and SounPacific's name and telephone number.
6. Take measurements of pH, conductivity, temperature, and visual observations to verify the stabilization of these parameters. At least five measurements of these parameters should be made throughout the purging process. The parameters shall be considered stabilized if successive measurements vary by less than 0.25 pH units, 10% of conductivity in  $\mu\text{S}$ , and  $1^{\circ}\text{C}$  (or  $1.8^{\circ}\text{F}$ ). Continue purging until at least three times the casing volume has been removed, and the measured parameters have stabilized as indicated above. Do not exceed seven casing volumes.
7. Take a final depth to groundwater measurement and calculate the casing volume of the recharged well. Ideally, the casing volume should have recharged to at least 80% of the original measured casing volume before sampling commences. If due to slow recharge rates it is not feasible to wait for the well to fully recharge, then note this on the Gauging Data / Purge Calculation Sheet and proceed to sample following the procedure below.

## **Sampling**

8. **After completing groundwater measurement, and checking for free product if necessary, in accordance with SounPacific's Standard Operating Procedures for Groundwater Level Measurements and Free Phase Hydrocarbon Measurements, and after purging monitoring wells as described above, groundwater samples may be collected.**
9. Slowly lower a clean, previously unused disposable bailer into the well water approximately half of the bailer length, and allow the bailer to slowly fill.
10. Withdraw the full bailer from the monitoring well and utilize the included (clean and unused) bottom-emptying device to fill the necessary sample containers, and seal the container with the included PTFE (Teflon) lined cap.
11. When filling VOAs, fill the VOA completely full, with the meniscus rising above the rim of the bottle. Carefully cap the VOA and invert it and gently tap it to determine whether air bubbles are trapped inside. If the VOA contains air bubbles, refill the VOA and repeat this step.
12. All samples shall be labeled with the Sample ID, the Sample Date, and the Sample Location or Project Number. Use an indelible marker for writing on sample labels.
13. Record all pertinent sample data on the Chain of Custody.
14. Place samples in an ice chest cooled to 4°C with ice or "blue ice". Bottles should be wrapped in bubble wrap, and VOA's should be inserted in a foam VOA holder to protect against breakage. Samples are to be kept at 4°C until delivered to the laboratory. Any transference of sample custody shall be indicated on the Chain of Custody with the appropriate signatures as necessary.
15. Utilize clean, previously unused gloves, bailer and line, and bottom-emptying device for each well sampled.
16. When finished with all sampling, close and secure all monitoring wells.
17. Leave the site cleaner than when you arrived and drive safely.

# **Appendix D**

## GAUGING DATA/PURGE CALCULATIONS

Job Site:

Blue Lake 76

Job No.:

SP-110

Event:

13th Quarterly

Date:

7/18/05

**SounPacific**  
Environmental Services  
(707) 269-0884

WELL NO.	DIA (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPL (ft.)	Bailer Loads	Notes
MW-2	2	18.15	8.75	9.4	1.50	4.5	-	-	Leak at 2" cap
MW-3	2	19.21	8.95	10.26	1.64	4.92	-	-	No odor
MW-4	2	19.41	10.96	8.45	1.35	4.05	-	-	Odor

## Explanation:

DIA = Well Diameter

DTB = Depth to Bottom

DTW = Depth to Water

ST = Saturated Thickness (DTB-DTW)

CV = Casing Volume (ST x cf)

PV = Purge Volume (standard 3 x CV,  
well development 10 x CV)

SPL = Thickness of Separate Phase Liquid

## Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.

4 in. dia. well cf = 0.65 gal./ft.

6 in. dia. well cf = 1.44 gal./ft.

Sampler:

J. A. Gaines



RECEIVED  
7/19/05

FILE

## Well Gauging/Sampling Report

Sheet 1 of 3

Date: 7/18/05 Project Name: Blue Lake 76 Project No: SP-110 Well Number: MW-2

Analyses Tested: BTEX, S-Oxys, TPH<sub>g</sub>, TPH d/mo

Sample Containers: (3) HCl VOA's, (2) 1-L Amber bottles

Purge Technique: ☒ Bailer ☐ Pump

Sounder Used: ☐ Water Meter ☒ Interface Meter

### Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes
10:59	8.75		No sheen
11:17	8.75		↓
	End		

### Field Measurements

Time	Total Vol. Removed (gal)	pH	Temp (F)	Cond. (ms/cm)	DO (mg/L)	DO (%)	
11:42	0	6.73	61.09	.146	1.28	13.1	
11:48	1.50	6.61	61.08	.148	.85	8.6	
11:55	3.00	6.80	60.85	.147	.66	6.7	
12:00	4.50	6.78	60.85	.146	.60	6.1	

Field Scientist: Jeff Grimes



## Well Gauging/Sampling Report

Sheet 2 of 3

Date: 7/18/05 Project Name: Blue Lake 76 Project No: SP-110 Well Number: MW-3

Analyses Tested: BTEX, S-oxy's, TPH<sub>g</sub> TPH<sub>d</sub>/mo

Sample Containers: (3) HCl VOA's, (2) 1-L amber bottles

Purge Technique: ☒ Bailor ☐ Pump

Sounder Used: ☐ Water Meter ☒ Interface Meter

### Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes
11:09	8.95		Sheen detected
11:20	8.95		↓
	End		

### Field Measurements

Time	Total Vol. Removed (gal)	pH	Temp (F)	Cond. (µmS/cm)	DO (mg/L)	DO (%)	
12:11	0	6.54	62.69	233	.48	5.0	
12:20	1.64	6.87	63.10	235	.55	5.7	
12:25	3.28	6.86	62.58	236	.51	5.2	
12:30	4.92	6.88	62.47	231	.51	5.2	

Field Scientist: Jeff Gaines



## Well Gauging/Sampling Report

Sheet 3 of 3

Date: 7/18/05 Project Name: Blue Lake 76 Project No: SP-110 Well Number: MW-4

Analyses Tested: BTEX, S oxy's, TPHg, TPHd/mo

Sample Containers: (3) HCl VOA'S, (2) 1-L amber bottles

Purge Technique: ☒ Bailor ☐ Pump

Sounder Used: ☐ Water Meter ☒ Interface Meter

### Water & Free Product Levels

Time	Depth to Water	Depth to Product	Notes
11:12	10.97		No sheen
11:23	10.96		No sheen
	End		

### Field Measurements

Time	Total Vol. Removed(gal)	pH	Temp(F)	Cond. (ns/cm)	DO(mg/L)	DO(%)	
12:45	0	6.95	63.84	.649	.37	3.9	
12:52	1.35	6.93	62.59	.653	.37	3.8	
12:57	2.70	6.99	62.90	.648	.35	3.6	
1:02	4.05	7.00	63.33	.616	.37	3.8	

Field Scientist: Jeff Gerner



FILE

## Well Gauging/Sampling Report

Sheet 1 of 1

Date 9/31/05 Project Name Blue Lake Fb Project No SP-110 Well Number DM-wellAnalyses  
Tested \_\_\_\_\_Sample  
Containers 3 6045 (HCl), 2 1 liter Amber bottlesPurge  
Technique☒ Bailor☐ PumpSonnet  
Used☐ Water Meter☒ Interface  
Meter

## Water &amp; Free Product Levels

Time	Depth to Water	Depth to Product	Notes
	14.1		sheen, hydrocarbon odor detected

## Field Measurements

Time	Total Vol. Removed(gal)	pH	Temp(F)	Cond (µmS/cm)	DO(mg/L)	DO(%)	
10:35	750	7.63	67.38	0.238	2.06	20.1	

Field Scientist: \_\_\_\_\_